

NOTES ON THE GENUS *EUPLECTA* OF SEMPER, WITH DESCRIPTIONS OF SUPPOSED NEW SPECIES FROM CEYLON.

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PLATE XIV.

HAVING had some small Ceylon Helices placed in my hands by Mr. E. R. Sykes, attention has been called to the genus *Euplecta* of Semper.¹ In 1880 Mr. W. T. Blanford² referred to Semper's work, pointed out the confusion that inevitably arises from describing two species as the type of a genus, and adopted the one that stood first, viz. *E. subopaca*. There are several marked differences between this and Semper's second species, *E. Layardi*. The jaw of the first has a central projection, while in *E. Layardi* there is none; in the radula the elongate form of the central teeth of the first species is very different to the shorter, blunter form of the second; the number of teeth in each row is as 100 to 140-160 respectively, this being the most striking difference, and pointing to a very dissimilar form of buccal mass, and one in which the radula is broad in comparison to its length. The genitalia of these two species are, however, very much alike: in both there is a short sessile spermatheca, perhaps a more important generic character and one less liable to change than the odontophore, which depends so much on the nature of the food consumed. Mr. W. T. Blanford was the first to examine this genus from an anatomical point of view, when treating of the position of other Indian species unknown at the time to Semper. Taking the form of the animal (which is without shell lobes) and the radula, he placed in *Euplecta* a number of Eastern Himalayan and Assam species, where it is correct they should remain until examination of the internal anatomy, especially the generative organs, should prove them something very different to that which Semper has shown *E. subopaca* to be.

Taking the shell characters, the species now included in the genus may be distinguished by the very well-marked filiform costulation, which in some shells is most regular and strongly developed. Semper's four described species are:—

- Euplecta subopaca*, Pfr. Ceylon.
- *Layardi*, Pfr. Ceylon.
- *rotundata*, Semper. Digollorin.
- *bicarinata*, Semper. Luzon.

¹ Reisen im Archipel der Philippinen, iii (1870), p. 14.

² Journ. Asiatic Soc. Bengal, vol. xlix, pt. 2 (1880), p. 191.

But he is doubtful concerning the correct generic position of the two last.

Blanford added the following:—

Euplecta pansa, Bs. : Burma.

— *Sikrīgullensis*, Nevill: Behar. [Since found to be a *Macrochlamys*.¹]

— *climacterica*, Bs. : Assam Hills.

— *Austeni*, W. Blf. : Garo Hills. [In my field notes there is no reference to any shell lobes. It is thus described: "Animal of pale colour; head and tentacles very dark; foot rather short, with gland."]

— *falcata*, W. Blf. : Garo Hills. [According to my notebook: "Animal of a pale orange tint, blending into redder colour near the head; this is brown above, with darkish, rather short tentacles; foot short, with glandular extremity." No shell lobes are alluded to here.]

— *ornatissima*, Bs. : Sikkim.

? *serrula*, Bs. : Teria Ghat. [Writing from memory, the animal is similar to that of *Austeni* described above.]

?? *anceps*, Gould. [Is a *Macrochlamys*. As noted by Blanford and observed since by myself, the right and left shell lobes are well developed.]

?? *arata*, W. Blf.

Geoffrey Nevill, in his amended Hand List, which he left to me, includes a great many more. These I give here because it is only the combined work of conchologists and malacologists, past and present, placing on record their several views concerning the generic position of given species, and the expenditure of hours of labour devoted to investigation, that will in the end result in placing these forms in some satisfactory grouping. The MS. Hand List mentioned above is the outcome of the last work Nevill was able to do in the Indian Museum, Calcutta: it is, in fact, the catalogue of that collection, and its arrangement as left by him when he came back to Europe on sick leave. Had he lived a very short time longer, this revised catalogue would have been printed, and his views on the classification, especially of the Indian mollusca, published. As will be seen further on, he proposed a new section, founded on shell characters, to embrace a number of Ceylon and Southern Indian species. It is an excellent example of the method on which much of our present classification has been built up; it is as accurate as most of that now accepted, while it is all on the road to being made more so. I do not propose to follow my old friend Geoffrey Nevill and describe and establish this new subgenus; the species he placed in it, however, show how very much has to be learned of their anatomy, before they can be all satisfactorily located: some have already been transferred to other genera.

¹ Animal figured in L. and F. W. Moll. India, pl. xix, pt. 3, figs. 3, 3a, from Stoliczka's set of drawings.

EUPLECTA. (Section I, Nevill MS.)

- Euplecta subopaca*, Pfr. = *corylus*, Reeve. Ceylon.
 — *partita*, Pfr. = *marcida*, Bs. Ceylon.
 — *subconoidea*, Pfr.
 — n.sp. No. 74, Hand List. Kandy.
 — n.sp. No. 77, Hand List. Kandy.
 — n.sp. No. 78, Hand List. Nuwara Eliya, Ceylon.
 — n.sp. No. 79, Hand List. Darjiling.
 — *pansa*, Bs. Burma.
 — *Sikrigaliensis*, Nevill (*Sikrigallensis*, type error). Near Calcutta and Sikrigali.
 ? *subkoondaensis*. Nevill MS. Myhendra, Travancore.
 ? *arata*, Blf. In all probability a *Macrochlamys*. Bhamao.
 ? *anceps*, Gould. Tenasserim. Is a *Macrochlamys*.
 — *climacterica*, Bs. Teria Ghat.
 — var. *nana*, Bs. = *geiton*, Theob. (Journ. Asiat. Soc. Bengal, 1864, p. 252). Never described. Teria Ghat. (= *vidua* var. *minor*, W. Blf. Same locality.)
 — *vidua*. W. Blf. MS.: Conch. Ind., pl. cxxx, figs. 2 and 3. Khasi Hills, 1870.
 — *vidua*, W. Blf.: Journ. Asiat. Soc. Bengal, 1880. Near Gola Ghat, Assam.
 — var. *convexior*. Nevill MS. Naga Hills.
 — *præmissa*. Nevill MS. Jezpur, Assam.
 — var. *citrius*. G.-A. MS. Naga Hills.
 — *Austeni*, W. Blf. Garo Hills.
 — *ornatissima*, Bs. Base, Darjiling Mountains.
 — *Frauenfeldi*, Zeleb. Nicobars.
 — *serrula*, Bs. Teria Ghat.
 — var. *nana*. Nevill MS. Sylhet. Probably from the "tilas" or low hills near Chatak and not on the Limestone of Teria Ghat.
 — *falcata*, W. Blf. Garo Hills.
 — *bijuga*, Stol. Penang. Is near *anceps*, Gould, which is a *Macrochlamys*.¹
 ? *Roepstorffi*, Möreh (*Rotularia*). Nicobars.
 ? *Massoni*, Behn. (*Rotularia*: type). Nicobars.
 ? *Reinhardi*, Möreh. Nicobars.
 ? *semifusca*, Desh. (*Rotularia*). Mauritius.
 ? *Rodriguezensis*, Crosse (*Rotularia*). Rodriguez.
 ? *filocincta*, Pfr. Mindanao, Philippines.
 ? *bifilaris*, Semper. Luzon.

¹ *M. Pataniensis*, De Morgan, from Perak, is placed in *Euplecta* by Dr. von Möllendorff; it is also allied to *M. anceps*.

(Section II, Nevill MS.)

- Euplecta Layardi*, Pfr. Ceylon.
 — *phidias*, Pfr. Ceylon.
 — *concaospira*, Pfr. Ceylon.
 — *bifasciata*. Nevill MS. Myhendra, Travancore. Ex Coll.,
 Beddome.
 — *subgranulifera*. Nevill MS. Ditto Ditto
 — *hyphasma*, Pfr. Ceylon.
 — *verrucula*, Pfr. Ceylon.
 — *Emiliana*, Pfr. Ceylon.
 — sp. unnamed. No. 132, Hand List. Ceylon.
 ? *subdecussata*, Pfr. Madras.
 — *turritella*, H. Adams = *conulus*, H. Adams. Nuwara Eliya,
 Ceylon.
 — *convexiuscula*, Pfr. Ceylon.
 — *Baconi*, Bs. Benares, Moissaka, and Calcutta.
 — *cingilensis*, Bs. = *Emiliana*, Rv., non Pfr. Balapiti, Ceylon.—
 Note by Nevill: "Animal large and very active, yellow,
 here and there lightly mottled grey; small lobe above
 mucous gland, mucous gland indistinct."

Nevill was a conchologist, and had had no training in the study of anatomical details; but from association with Ferdinand Stoliczka and others, he was beginning to recognize the value of the outward form of the animal and the work that Stoliczka had initiated in India, and I owe much myself to this same gifted naturalist. It is quite apparent on what Nevill based his two sections. He was aware, from the paper by Blandford, of the differences between Semper's types *E. subopaca* and *E. Layardi*, and he placed in *Euplecta* proper the more globose, convex-sided shells, proposing the new section for the decidedly keeled ones, many of which partake in this respect of the character of the genus *Sitala*. Further anatomical study of Ceylon shells will solve the question as to the true position of *E. Layardi*, and what species are allied to it.

In one very small Ceylon shell sent me by Mr. Sykes, collected by Mr. H. B. Preston, the dried-up animal remained; and after soaking it well, I was able to make out the form of the foot, and to extract the radula in a complete state, with not a tooth lost. This radula agrees in every way with Semper's figure of that of the typical species *E. subopaca*.¹

The costulation of the shell is so like that of several of the Ceylon keeled forms that there is every probability of many others belonging to the same generic stock; and I much wish to obtain a good number of species to examine, and so carry on the work Professor Semper so well began. I am glad to say there is every hope of doing this, since Mr. Collett has written to say he is now collecting the animals of all he can find and preserving them in spirits.

¹ Loc. cit., pl. vi, fig. 19.

Among other shells found by Mr. Preston is a *Kaliella* of the *K. Barrackpurensis* group, and a very small globose *Lamprocystis* (?). I also take this opportunity to describe a small Helicoid found by Dr. Leith at Nuwara Eliya, which I believe to be new.

1. EUPLECTA PRESTONI, n.sp. Pl. XIV, Figs. 1-1e.

Shell depressedly conoid, keeled, scarcely perforate; sculpture, fine transverse filiform ribbing, each rib having a short white hair at intervals rising from it, giving it a decussate appearance to the unaided eye. There are nine rows of these hairs on the penultimate whorl. The shell is smooth and shining below, but under strong power is found to be crossed by transverse lines. Colour, bright sienna. Spire low; apex blunt; suture moderate, lirate. Whorls five, sides convex, rounded below. Aperture narrowly quadrate, peristome thin; columellar margin oblique, the columella then reflected. Size: maj. diam. 4·8; alt. axis, 2·25 mm. Animal dark-coloured, the pallial groove well seen; mucous gland with a small overhanging lobe.

The radula, which was extracted complete, is very minute, measuring 0·053 mm. long by 0·018 broad, the breadth of the large median teeth being 0·006 wide. The dental formula is—

$$\begin{array}{c} 38 : 1 : 38 \text{ or} \\ 28 : 10 : 1 : 10 : 28 \end{array}$$

The centre tooth is very long and spear-shaped, with two well-developed cusps low down at the base on either side; the succeeding admedian teeth also have long narrow points with a large cusp on the outer side; the laterals are bicuspid, the innermost being the longest, and they decrease in size towards the outer margin. This agrees with *subopaca* of Semper, but the number of teeth in the row is less. The jaw is rather straight, with a central projection. In *E. climacterica*, the teeth are of the same type, arranged—

$$+ ? : 3 : 12 : 1 : 12 : 3 : + ?$$

the three outer ones being intermediate in form.

It was not to be expected that in such a specimen much could be seen of the generative organs, but what remains agrees with Semper's descriptions. The amatorial organ is long, with a sharp conoid point. The spermatophore is also preserved, and is long, narrow, and gutter-like, with spikelets at intervals along one side of the margin. The hairs of the periostracum are very beautiful objects under the microscope. The filiform rib is seen to have a white thread attached and lying on its upper surface, while the hairs themselves are seen to be formed by loops, as it were, in the thread, drawn up from the rib on which it rests. To put it another way, suppose short lengths of thread be taken, and the outer fourth of each to be drawn out to a fine point and turned up at right angles; if these threads be placed in a line and two fine ends united, hair-like points would be the result.

Hab.—Uda Pussellawa, Ceylon (H. B. Preston).

2. *KALIELLA SALICENSIS*, n.sp. Pl. XIV, Fig. 3.

Shell perforate, conical; sculpture irregular, coarse, transverse ribbing; periostracum umber-coloured. Spire conic, flat-sided; suture very shallow; whorls 7; sides rather flat. Aperture quadrate, straight below; peristome suboblique; columellar margin reflected. Size: alt. 3, maj. diam. 2·8 mm.

The whorls of this species do not increase in breadth so much as in *K. Barrackpurenensis*; the fine, regular, transverse sculpture is absent, rougher irregular ribs taking its place. The base of the Ceylon shell is not so broad, in proportion to the height of the spire, as in the Bengal species.

Hab.—Uda Pussellawa (H. B. Preston).

3. *LAMPROCYSTIS?* *SINHILA*, n.sp. Pl. XIV, Fig. 2.

Shell globose, solid for its size, scarcely umbilicated; sculpture smooth, with a strong periostracum; colour? (bleached). Spire low, depressedly conic, apex very blunt; suture shallow; whorls 5, closely wound, regularly increasing. Aperture narrowly lunate, vertical; peristome simple; columellar margin suboblique. Size: maj. diam. 3·6; alt. axis 1 mm.

Hab.—Uda Pussellawa, Ceylon (H. B. Preston).

This species very probably belongs to the Zonitidæ, but there is no certainty with regard to these small forms; it is very desirable to procure examples of the animal. It will be a long time before the micro-helices are better known. In some cases they are the young of larger species, but that does not detract from their interest.

4. *LAMPROCYSTIS?* *NUWARAENSIS*, n.sp. Pl. XIV, Fig. 4.

Shell very depressedly globose, rather openly umbilicated; sculpture, very fine longitudinal striation, crossed by irregular lines of growth; colour pale horny-grey. Spire very low; apex flatly rounded; suture well impressed; whorls $5\frac{1}{2}$, sides rounded. Aperture narrowly lunate, vertical; peristome simple. Columellar margin sinuate. Size: major diam. 4; alt. axis 1·9 mm.

Hab.—Nuwara Eliya, Ceylon (Dr. Leith).

This shell, which is a well-marked form, came into my hands by purchase from Mr. Geale, who, I believe, had all Dr. Leith's collection to dispose of.

EXPLANATION OF PLATE XIV.

- FIG. 1. *Euplecta Prestonii*, n.sp., $\times 8$. Hair of periostracum, $\times 30$ and 58.
 1a, central teeth of radula; 1b, laterals; 1c, last on margin; 1d, jaw:
 $\times 58$. 1e, part of generative organs, $\times 12\cdot5$.
 ,, 2. *Lamprocystis?* *Sinhila*, n.sp. $\times 8$.
 ,, 3. *Kaliella Salicensis*, n.sp. $\times 8$.
 ,, 4. *Lamprocystis?* *Nuwaraensis*, n.sp. $\times 8$.